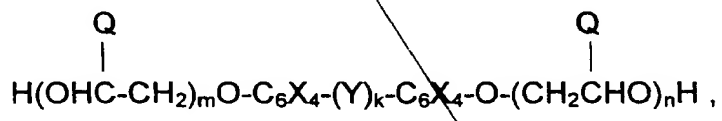
Claims

1. Non-porous, waterproof film having a water vapour permeability of at least 1000 g/m^2 day in accordance with ASTM E96-66 (Procedure B), with the proviso that the water temperature is kept at 30°C, while the ambient temperature is 21°C at 60% RH, based on a thermoplastic polyurethane composed of a polyether glycol, a polyisocyanate, and a chain extender, at a ratio of NCO to active hydrogen atom of 0,9 to 1,2, characterised in that the polyurethane is composed of

a) 40 to 52 wt.% of polyether glycol, calculated as polyethylene oxide glycol, having an average molecular weight of greater than 800 to 4000 and an atomic ratio of carbon to oxygen in the range of 2,0 to 4,3, with at least 30 wt.% of the polyurethane being composed of a polyether glycol having an atomic ratio of carbon to oxygen in the range of 2,0 to 2,4,

b) 30 to 45 wt.% of polyisocyanate, calculated as 4,4'-diphenyl methane diisocyanate,

c) 0,5 to 10 wt.% of araliphatic diol of the formula



wherein k = 0 or 1, where if k = 1, Y stands for a methylene or isopropylidene group,

Q has the meaning of an H-atom or a CH_3-group, C_6X_4 has the meaning of a phenylene group wherein X is hydrogen or a chlorine or bromine atom, and m and n may be the same or different and stand for an integer ≥ 1, with m + n ≤ 10, and

d) 5 to 20 wt.% of a chain extender having a maximum molecular weight of 500, calculated as 1,4-butane diol, less the amount of araliphatic diol.

2. A non-porous polyurethane film according to claim 1, characterised in that

- the molecular weight of the polyether glycol is in the range of 1000 to 3000.

3. A non-porous polyurethane film according to claim 1, characterised in that the weight percentage of polyether glycol is in the range of 41 to 50.

4. A non-porous polyurethane film according to claim 1, characterised in that the weight percentage of polyisocyanate, calculated as 4,4'-diphenyl methane diisocyanate, is in the range of 35 to 42 wt.%.

5. A non-porous polyurethane film according to claim 1, characterised in that the polyether glycol is composed wholly of polyethylene oxide glycol having an average molecular weight of about 2000.

6. A non-porous polyurethane film according to claim 1, characterised in that in the araliphatic diol k = 1 and Y represents an isopropylidene group, while Q and X have the meaning of an H-atom and m and n = 1.

7. A non-porous polyurethane film according to claim 1, characterised in that in the araliphatic diol k = 1 and Y represents an isopropylidene group, while Q has the meaning of a CH_3-group and X has the meaning of an H-atom and m and n = 1.

8. A non-porous polyurethane film according to claim 6, characterised in that the araliphatic diol is present in an amount of 1 to 8 wt.%.

9. A non-porous polyurethane film according to claim 1, characterised in that the low-molecular weight chain extender is 1,4-butane diol.

10. Use of a film according to one or more of the preceding claims for the manufacture thereof of rainwear or tents.

11. Use of a film according to one or more of claims 1 - 9 for the manufacture of seats.

12. Use of a film according to one or more of claims 1 - 9 for the manufacture of shoes, more particularly sports shoes.

13. Use of a film according to one or more of claims 1 - 9 for the manufacture thereof of mattress covers.

14. Use of a film according to one or more of claims 1 - 9 for the manufacture thereof of underslating for roofing structures.

15. Use of a film according to one or more of claims 1 - 9 for the manufacture thereof of garments for medical purposes.

16. Use of a film according to one or more of claims 1 - 9 for the manufacture thereof of wound dressings.